

A photograph of a CNG refueling station. A white pickup truck with 'BAF' and 'A CLEAN ENERGY COMPANY' branding is parked at a pump. A group of people are gathered around the truck. The background shows a clear sky and some industrial structures.

Transitioning to a Compressed Natural Gas Fleet: Infrastructure and Other Considerations

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Our Discussion Today

1 Summary of Key CNG Fueling Components

2 Understanding Operational Parameters

3 Cost Drivers



Key CNG Fueling Components

- 1. Gas and Electric Service**
- 2. Compression**
- 3. Storage**
- 4. Dispensing**
- 5. Vehicle Maintenance**



Gas and Electric



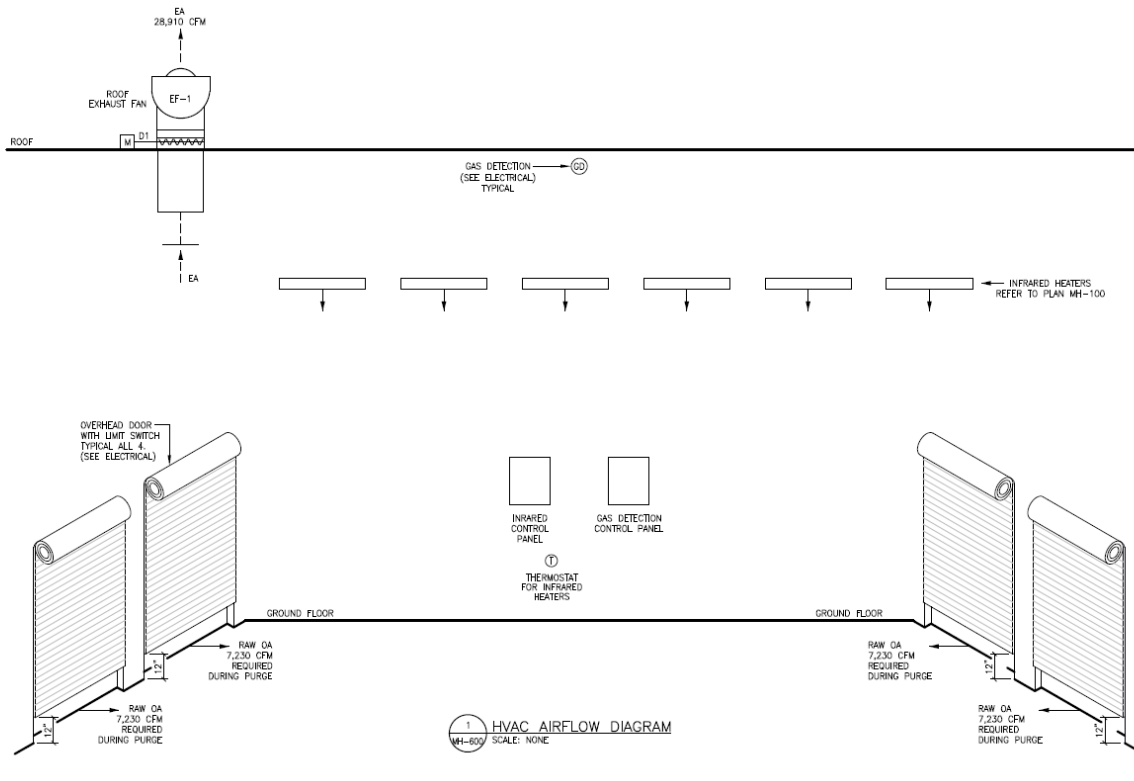
Compression



Storage



Dispensing



Operational Parameters

1. How Many Vehicles

2. Fuel Usage

3. Fueling Time



Facility Name:	United Parcel Service									FUEL DATA*					
Facility ID #:										Type	unit	Btu/unit	GGE	DGE	
Street Address	5020 Ivy Street									Diesel	gal	129,500	0.88	1.00	
City, State Zip	Commerce City, CO 80022									CNG	scf	850	134.1	152.4	
										LNG	gal	75,000	1.52	1.73	
										LPG	gal	85,000	1.34	1.52	
										Gasoline	gal	114,000	1.0	1.14	

Arrangement Options	Fueling Stations			Vehicles per Day By Fuel Type				Avg Daily Fuel Use (GGE)		Fueling Rate or Fueling Time		Average Fill Time	Total Fuel Time	
	dispensers	nozzles	total	Diesel	Gasoline	Bio	Total	per unit	total	GGE/min	fuel/min	min	hours	
Current Arrangement														
Automobile or Van					125		125	8.6	1,078		0	#DIV/0!	#DIV/0!	
Bus, Fire Truck, Large Delivery							0				0			
Semi-Tractor Trailer				31			31	77.3	2,397		0			
Multi-use							0				0			
Turnaround time between vehicles				31	125	0	156						0.0	
TOTAL				31	125	0	156	22.3	3,475			#DIV/0!	0.00	
Liquid Fuel	dispensers	nozzles	total	Diesel	Gasoline	Bio	Total	per unit	total	GGE/min	fuel/min	min	hours	
Automobile or Van							0				0	#DIV/0!	#DIV/0!	
Bus, Fire Truck, Large Delivery							0				0			
Semi-Tractor Trailer							0				0			
Multi-use							0				0			
Turnaround time between vehicles				0	0	0	0					0	0.0	
TOTAL				0	0	0	0					#DIV/0!	0.00	
Gaseous Fuels - Fast Fill	dispensers	nozzles	total	CNG	LNG	LPG	Hydrogen	Total	per unit	total	GGE/min	fuel/min	min	hours
Transit		2		31		0		31	77.3	2,397	16	2,146	4.8	2.50
Standard		5		125		0		125	8.6	1,078	8	1,073	1.1	1.12
								0						

Fuel Usage and Time

Cost Considerations

1. Refueling Time
2. Natural Gas Street Pressure
3. Operational Flexibility
4. Redundancy



HORSEPOWER CALCULATOR

DATE
WHEEL

UNIT
CONVERTER

Suction pressure

psig



Discharge pressure

psig



Flow Rate

SCFM



Estimated stage 4

Estimated compressor
power 107.1

HP



Estimated parasitic power 4.284

Total estimated power 111.4



Refueling Time

Street Pressure



Operational Flexibility



Redundancy

Resources and Codes

- PEI RP-1500 Recommended Practices for the Design, Installation, Operation, and Maintenance of CNG Fueling Facilities
- Code for Motor Fuel Dispensing Facilities and Repair Garages - NFPA 30A
- Vehicular Gaseous Fuel Systems Code - NFPA 52

Questions?

CONTACT INFORMATION

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